

SUPPORT FOR THE AMENDMENTS

The present amendment cancels claims 1-46, and adds new claims 47-104.

Support for newly added claims 47-56 is found in original claims 1-10.

Support for newly added claims 57-63 is found at specification page 12, last 6 lines, page 13, lines 1-3 and 7-9, and page 14, lines 15-18 and 24-26, as well as original claims 20 and 22.

Support for newly added claims 64-78 is found at specification page 15, lines 20-31, page 16, lines 1-12, page 17, lines 2-35, page 18, lines 1-35, and page 19, lines 1-2, as well as original claims 27-34.

Support for newly added claims 79-86 is found in original claims 35-42.

Support for newly added claims 87-95 is found in original claims 43 and 44.

Support for newly added claims 96-99 is found at specification page 21, lines 2-18, as well as original claims 45 and 46.

Support for newly added claims 100-104 is found at specification page 12, last 9 lines, page 13, lines 1-35, and page 14, lines 1-14, as well as original claims 11-14.

It is believed that these amendments have not resulted in the introduction of new matter.

REMARKS

Claims 47-104 are currently pending in the present application. Claims 1-46 have been cancelled, and new claims 47-104 have been added, by the present amendment.

Applicant wishes to extend his appreciation to Examiner Davis for the indication in paragraph 12 on page 6 of the Official Action that now cancelled claims 2, 4, 6, 8, 10 and 28, which correspond to newly added claims 48, 50, 52, 54, 56, 65 and 66, contain allowable subject matter.

The rejection of now cancelled claims 1, 3, 5, 7, 9, 20, 22, 27 and 29-42 under 35 U.S.C. § 112, second paragraph, is obviated by amendment in part, with respect to the cancellation of said claims.

However, it should be mentioned that newly added claims 57 and 100 recite a “macromolecule.” Applicant respectfully submits that the term “macromolecule” is clear and definite to a skilled artisan, as evidenced by the enclosed internet publication, as well as the disclosure provided by the present specification, which provides a few examples of what may constitute the macromolecule, including, but not limited to, any known macromolecule, a biological macromolecule, an oligonucleotide, a protein, an antibody, a peptide, a macromolecule for recognition of a specific site that exhibits target molecules associated with a particular disease, and a macromolecule for recognition of a specific site that is selected from the group consisting of apoptosis sites, necrosis sites or tumor sites (See e.g., page 1, lines 10-12, page 12, last 9 lines, and page 13, lines 1-9).

Withdrawal of this ground of rejection is respectfully requested.

Applicant respectfully requests that the provisional obviousness-type double patenting rejection of now cancelled claims 20 and 22 (corresponding to newly added claims 57-59) over claims 1-27 of copending application number 10/518,382, be withdrawn without a terminal disclaimer. Applicant respectfully notes that the effective U.S. filing date of

compending application number 10/518,382 is June 30, 2003, which is the same effective U.S. filing date for the present application. Applicant respectfully submits that the present application claims the base invention, which includes the [<sup>18</sup>F]-labeled maleimide compound of formula (I) and a process for preparing the same, whereas compending application number 10/518,382 claims the additional limitation of a peptide labeled with the [<sup>18</sup>F]-labeled maleimide compound of formula (I). Therefore, since the present application claims the base invention, the Examiner should withdraw the rejection and permit the base application to issue as a patent without a terminal disclaimer. See MPEP § 804(I)(B)(1).

The Examiner is respectfully reminded that upon a determination that the product claims drawn to the elected invention are found allowable, method claims drawn to the non-elected invention should be rejoined and examined for patentability, pursuant to MPEP § 821.04 and *In re Ochiai*, 71 F.3d 1565, 37 USPQ2d 1127 (Fed. Cir. 1995).

In conclusion, Applicants submit that the present application is now in condition for allowance and notification to this effect is earnestly solicited.

Respectfully submitted,

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Dictionary:

## macromolecule

(măk'rō-mōl'ē-kyūl) 

*n.*

A very large molecule, such as a polymer or protein, consisting of many smaller structural units linked together. Also called *supermolecule*.

macromolecular măk'rō-mō-lec'u-lar (-mō-lēk'yō-lor) *adj.*

macromolecule

Find

Dental Dictionary: macromolecule

*n*

<http://www.answers.com/macromolecule?cat=technology&print=true>

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Any substance with molecules of colloidal size, notably proteins, nucleic acids, and polysaccharides.

Britannica Concise Encyclopedia: macromolecule

Any very large molecule, composed of much larger numbers (hundreds or thousands) of atoms than ordinary molecules. Some macromolecules are individual entities that cannot be subdivided without losing their identity (e.g., certain proteins, with molecular weights into the millions). Others (polymers) are multiples of a repeating building block (monomer) in chains or networks (e.g., plastics, cellulose). Most macromolecules are in the size range typical of colloids.

For more information on macromolecule, visit [Britannica.com](http://www.britannica.com).

Columbia Encyclopedia: macromolecule, term that may refer either to a crystal such as a diamond, in which the atoms are identical and held by covalent bonds (see chemical bond) of equal strength, or to one of the units that compose a polymer. Macromolecules such as proteins and nucleic acids are vital to the functions of living cells.

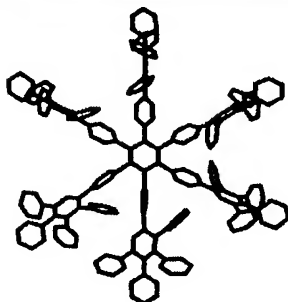
Veterinary Dictionary: macromolecule

A very large molecule having a polymeric chain structure, as in proteins, polysaccharides, etc.

Wikipedia: macromolecule



Illustration of a polypeptide macromolecule



Structure of a polyphenylene dendrimer  
macromolecule reported by Müllen and  
coworkers in Chem.-Eur. J., 2002, 3858-  
3864.

The definition of the term macromolecule implies large molecule. In the context of science and engineering, the term may be applied to conventional polymers and biopolymers (such as DNA) as well as non-polymeric

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molecules with large molecular mass such as lipids or macrocycles. However, other large networks of atoms, such as metallic covalent networks or fullerenes, are not generally described as macromolecules. The term macromolecule was coined by Nobel laureate Hermann Staudinger in the 1920s.

## Usage

The use of the term macromolecule to describe different forms of compounds of molecules varies subtly from discipline to discipline. Living things are composed of macromolecule like proteins, carbohydrates and lipids. From the strict perspective of chemistry, a "molecule" consists of a number of atoms linked by covalent bonds. In biology and biochemistry, however, the term macromolecule may refer to aggregates of two or more macromolecules held together by intermolecular forces rather than covalent bonds but which do not readily dissociate. [1]

According to the recommended IUPAC definition the term macromolecule as used in polymer science refers only to a single molecule. For example, a single polymeric molecule is appropriately described as a "macromolecule" or "polymer molecule" rather than a "polymer", which suggests a substance composed of macromolecules. [2]

## Describing macromolecules

Because of their size, macromolecules are not conveniently described in terms of stoichiometry alone. The structure of simple macromolecules, such as homopolymers, may be described in terms of the individual monomer subunit and total molecular mass. Complicated biomacromolecules, on the other hand, require multi-faceted structural description such as the hierarchy of structures used to describe proteins.

## Unusual physical properties

Substances that are composed of macromolecules often have unusual physical properties. The properties of liquid crystals and such elastomers as rubber are examples. Although too small to see, individual pieces of DNA in solution can be broken in two simply by suctioning the solution through an ordinary straw. This is not true of smaller molecules. The 1964 edition of Linus Pauling's *College Chemistry* asserted that DNA in nature is never longer than about 5000 base pairs. This is because biochemists were inadvertently and consistently breaking their samples into pieces. In fact, the DNA of chromosomes can be tens of millions of base pairs long.

Another common macromolecular property that does not characterize smaller molecules is the need for assistance in dissolving into solution. Many require salts or particular ions to dissolve in water. Proteins will denature if the solute concentration of their solution is too high or too low.

<http://www.answers.com/macromolecule?cat=technology&print=true>

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## References

1. <sup>^</sup> van Holde, K.E. *Principles of Physical Biochemistry* Prentice Hall: New Jersey, 1998
2. <sup>^</sup> Link

## External links

- [Synopsis of Chapter 5, Campbell & Reece, 2002](#)
- [Lecture notes on the structure and function of macromolecules](#)

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